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April 13, 2007

VIA ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW
Washington, DC 20554

RE: WT Docket No. 96-86 – *Development of Operational Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010*

WT Docket No. 06-150 – *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*

WT Docket No. 06-169 – *In the Matter of Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the FCC's Rules*

Dear Ms. Dortch:

Ericsson Inc ("Ericsson") submits this response to the Access Spectrum, LLC, and Pegasus Communications Corporation (together "Access Spectrum/Pegasus") letter filed on March 29, 2007, concerning Ericsson's Reclamation Plan.[1] Access Spectrum/Pegasus commend Ericsson for developing a plan that offers a number of significant benefits to public safety similar to the Broadband Optimization Plan ("BOP").[2] However, Access Spectrum/Pegasus mistakenly claim Ericsson's proposal to increase the guard band size between public safety narrowband operations and the commercial C block over-allocates spectrum for guard band operations, and that its use of a 5 MHz channel size restricts technology choice, and forecloses benefits available with a plan that uses 5.5 MHz blocks.[3]

[1] Letter from Ruth Milkman, Counsel to Access Spectrum, LLC, Kathleen Wallman, Adviser to Pegasus Communications Corporation, Michael Gottdenker, Chairman and CEO, Access Spectrum, LLC, and Marshall W. Pagon, Chairman and CEO, Pegasus Communications Corporation, to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 96-86, 06-150, and 06-169 (filed March 29, 2007) ("Access Spectrum/Pegasus Letter").

[2] *Id*. at 1-2.

[3] *Id*. at 3-5.

Ericsson's 5 MHz Channel-Based Plan Is Technology Neutral and Will *Not* Foreclose Public Safety Use of Certain Technologies

Ericsson's use of globally-harmonized 5 MHz channels in the Reclamation Plan *maximizes* technology choice and *optimizes* public safety use of standard commercial technologies. Access Spectrum/Pegasus have not presented any evidence that such a widely used and accepted channel size will foreclose use of 4G technologies. Indeed, multiple 3G and emerging technologies, including WiMAX, cdma2000, HSPA, WCDMA, and LTE, operate on 5 MHz channel sizes. Moreover, if Access Spectrum/Pegasus are correct, the FCC foreclosed technologies when it allocated spectrum in 5 MHz blocks for Advanced Wireless Services ("AWS") as well as for the commercial portion of the Upper 700 MHz band. Ericsson is not aware that *any* parties opposed 5 MHz blocks in prior proceedings on this basis.

On the other hand, using a 5 MHz channel size has overwhelming advantages. Public safety will have the opportunity to benefit from broadband technologies deployed in the PCS, AWS and, shortly, in the commercial 700 MHz band, now and in the future, all of which utilize blocks of 5 MHz channel bandwidth.

Clearly, Ericsson's proposal is technology neutral. Its position does not stem from fear, as Access Spectrum/Pegasus suggest,[4] that adopting 5.5 MHz channels will place its technology at a competitive disadvantage compared to 4G technologies,[5] or an intent to preclude public safety from choosing WiMAX.[6] To the contrary, Ericsson's proposal supports numerous, varied, established, and emerging technologies including WiMAX. Both WiMAX and HSPA operate on 5 MHz channels, not 5.5 MHz. Moreover, Ericsson has a stake in WiMAX's commercial success. It delivers WiMAX products under an Original Equipment Manufacturer agreement with Airspan, even though it does not develop mobile WiMAX technology in-house.[7] Ericsson simply believes that industry will deploy 3G/HSPA technology more widely, because it is already well-standardized and has equivalent or better performance than WiMAX.[8] Additionally, industry has already launched HSPA commercially in more than 100 networks in over 50 countries.

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[4] *Id*. at 5.

[5] *Id*.

[6] Access Spectrum/Pegasus cite "Ericsson Pulls WiMAX Plug," *Light Reading* (22 Mar. 2007), retrieved April 13, 2007 from http://www.lightreading.com/document.asp?doc_id=120050, to support this claim. Access Spectrum/Pegasus Letter at n 19.

[7] The same Light Reading article confirms this. *See* "Ericsson Pulls WiMAX Plug," *supra* note 6.

[8] Ericsson's technical presentation, "3G Mobile Broadband using HSPA and LTE," provides information on the evolution of 3G mobile broadband and the expected time frame for deployment, including performance details. The presentation also describes ongoing 4G activities within ITU (IMT-Advance). *See* Letter from Elisabeth H. Ross, Counsel to Ericsson Inc., to Marlene H. Dortch, Secretary, FCC, WT Docket Nos. 96-86, 06-150 & 06-169 (filed Apr. 13, 2007), Attach. 1, Ekudden, Erik, Vice President, Head of Standardization and Industry Initiatives, Ericsson Inc, "Exploring the Evolution of Wireless Technologies Towards 3G LTE" (2007).

Access Spectrum/Pegasus' assertion that using 5 MHz channels will foreclose 4G technologies does not have any technical or factual basis. No standards exist for 4G technologies that include 5.5 MHz size channels. Therefore, selecting 5.5 MHz channels will not have an impact on 4G technology development. Access Spectrum/Pegasus still have not provided specific details or analysis to show a correlation exists between 4G technology and 5.5 MHz channels. In comparison, Ericsson's position is based on precedent and established policies, including development of industry-wide and global standards and global harmonization of spectrum. Bottom line, Access Spectrum/Pegasus fail to justify why the extra 0.5 MHz is *needed* when it can be used more efficiently as interference protection for public safety.

Using 5 MHz Channels For Public Safety, Aligned with Commercial and Global Spectrum Allocations, Will Create Greater Efficiencies

Ericsson strongly supports the FCC's initiative to create a centralized public safety broadband network. Locating public safety adjacent to commercial users creates optimum synergies by allowing public safety to use commercial, off-the-shelf-technology ("COTs") and equipment.[9] The FCC allocated the Upper 700 MHz commercial spectrum using 5 MHz channels consistent with global standards and AWS allocations. If it now allocates 5.5 MHz channels for public safety, it will undermine efforts to encourage public safety use of commercial equipment and create significant inefficiencies. Access Spectrum/Pegasus have not provided sufficient or persuasive evidence that using a 10% larger 5.5 MHz channel will increase technology capacity by that factor, or enhance network efficiency.

According to Access Spectrum/Pegasus, the BOP's use of 5.5 MHz channels creates a 10% increase in capacity.[10] However, a 10% increase in *channel size* does not necessarily result in a 10% increase in capacity of the *technology deployed*. If technology is not designed to use the increased capacity, increasing channel size will have negative consequences. The extra spectrum will actually lay fallow, resulting in waste and inefficiencies.

The key then, is whether standards have been or are being developed for technologies to use 5.5 channel bandwidths so they may take full advantage of the increased channel

[9] Many commenters share this view. *See e.g.,* Comments of Access Spectrum, LLC and Pegasus Communications Corporation, PS Docket No. 06-229, WT Docket No. 96-86 (filed Feb. 26, 2007), at 7 ("The public-private partnership is best facilitated by locating the public safety broadband spectrum directly adjacent to the broadband spectrum of the commercial partner."); *see also* Comments of M/A-Com, Inc., PS Docket No. 06-229, WT Docket No. 96-86 (filed Feb. 26, 2007), at 4-5 ("Relocating the consolidated narrowband channels to the upper end of the band would also increase interference protection and flexibility to local law enforcement and responders by placing the 700 MHz narrowband channels adjacent to the 800 MHz narrowband channels and the 700 MHz wideband/broadband channels adjacent to commercial/broadband/advanced wireless services ("AWS") spectrum...This reconfiguration would additionally lower equipment costs for public safety, due to the decreased requirements for interference mitigation.").

[10] *See* Comments of Access Spectrum, LLC, Columbia Capital III, LLC, Pegasus Communications Corporation and Telecom Ventures, LLC, CC Docket No. 94-102, WT Docket Nos. 06-150 & 01-309 (filed Sept. 29, 2006), at 4.

capacity.[11] Access Spectrum/Pegasus have not shown that standards-setting organizations are developing standards for technologies to operate on 5.5 MHz channels, and to Ericsson's knowledge, no such efforts are underway. For LTE, the 3GPP standardization organization has made an initial decision to support primarily 1.25 MHz, 1.8 MHz, 5 MHz, 10 MHz and 20 MHz, but not 5.5 MHz. Similarly, there is no evidence that WiMAX has established a profile based on 5.5. MHz, or that OFDM technology has been designed to operate on 5.5 MHz channel. Without standards based on a 5.5 channel size, equipment will not be designed to use the additional 0.5 MHz spectrum efficiently.

Access Spectrum/Pegasus's suggestion that a 5.5 MHz channel will provide other efficiency benefits is not supported. Access Spectrum/Pegasus claim that if optimized filters are used to reduce band edge roll-off, then a smaller buffer can be used for EV-DO and WCDMA carriers.[12] Arguably, with less spectrum needed for buffering, the additional spectrum can support another carrier. However, only one technology could actually use the additional spectrum in this way. Equipment using EV-DO technology could incorporate an additional carrier, not WCDMA/HSPA, DVB-H or Media-FLO-based equipment. Further, the added engineering and greater complexity of filter equipment required would substantially increase overall design and operations cost. Consequently, the alleged efficiency benefit is extremely limited in application and, even where it could apply, will increase the cost of deployment.

On the other hand, public safety can gain tremendous network efficiencies by using globally-standardized equipment based on 5 MHz channels. Standards-setting bodies have developed many standards for 3G equipment that operates on 5 MHz channels, and most likely, these standards will be applied in the adjacent commercial 700 MHz band. Similarly, new technologies will likely use existing global 5 MHz-channel based spectrum allocations, based on current technologies' evolution and global standardization activities. If the FCC allocates 5 MHz channels for public safety spectrum in the same way, it will enable public safety to choose from all the commercial technology built to these standards, and open opportunities for new equipment designs that cross commercial and public safety bands. For example, industry can develop handsets and base stations to operate *across the commercial and public safety bands*, allowing improved rural and indoor coverage. Public safety can take advantage of many new applications that meet critical operational needs.

Public safety cannot gain these efficiencies if the FCC creates a different spectrum allocation based on 5.5 MHz channels. Industry has not developed equipment with 10% additional capacity because there are not any standards developed for 5.5 MHz channels. Despite Access Spectrum/Pegasus' claims, the larger channel size will not necessarily translate into increased technology capacity or any efficiencies at all.

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[11] Even for technologies with flexible bandwidth capabilities (*e.g.*, technologies such as WiMAX and LTE that are based on OFDM modulation), RF limitations require that a discrete set of channel bandwidths be prescribed to support the technologies

[12] *See* Comments of Access Spectrum, LLC, Columbia Capital III, LLC, Pegasus Communications Corporation and Telecom Ventures, LLC, CC Docket No. 94-102, WT Docket Nos. 06-150 & 01-309, Attach. B, Decl.of Dr. Paul J. Kolodzy (filed Sept. 29, 2006), at 7.

Further, when any limited resource is considered for use, issues of cost and efficiency arise. Based on data from the recent AWS auction, a nationwide license of (2 x .05) MHz spectrum would be valued at approximately *$151 millio*n.[13] Access Spectrum/Pegasus may be right that technologies operating on 5 MHz blocks will not be negatively affected if the FCC adopts 5.5 MHz blocks, but adopting a larger block size is certainly expensive unless reasonably justified.

Dedicating Additional Spectrum for Interference Protection Promotes its Highest and Best Use

Adopting a globally-harmonized 5 MHz channel size has many benefits, and causes none of the harms Access/Pegasus allege. Using a 5 MHz block will not foreclose use of new technologies, or commercially favor HSPA over WiMAX, both of which operate on 5 MHz channels. Instead, aligning commercial and public safety block sizes promotes network efficiencies gained from global economies of scale, and maximizes opportunities for public safety to use COTs equipment and technologies.

If the FCC adopts the BOP's 5.5 MHz size channels, it will undermine its efforts to encourage public safety use of commercial broadband equipment and technology. The FCC can use the additional spectrum for far greater purposes, to afford public safety greater interference protection key to its mission critical operations.

Pursuant to the Commission's rules, this letter is being submitted for inclusion in the public record in the above-referenced proceedings.

Sincerely,

/s/ *Elisabeth H. Ross*

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[13] Ericsson calculated this value by multiplying the 2006 AWS Auction No. 66 price per population ($0.53) by the total population covered, 285,620,445. *See* "700 MHz: A Pivotal Auction." *Washington Telecom, Media & Tech Issue Focus* (2 Mar. 2007). Retrieved April 13, 2007 from http://www.wcai.com/pdf/2007/700_mar2.pdf

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